

WHAT IS CLAIMED IS:

1. A method of constructing a eukaryotic host microorganism for production of a heterologous protein encoded by a transgenically introduced gene, which is characterized by deleting or inactivating part or all of the genome of a eukaryotic host microorganism unnecessary or detrimental to production of the heterologous protein by a transformant of the host in culture for the purpose of improving productivity of the heterologous protein.
- 10 2. The method according to Claim 1, wherein the part of the genome unnecessary or detrimental to production of the heterologous protein by the transformant in culture is genes associated with energy metabolism, proteases, meiosis, transcription, cell growth and division and DNA synthesis, protein synthesis, membrane transport, cell structure maintenance, signal transduction or ion homeostasis in the eukaryotic host microorganism.
- 15 3. The method according to Claim 1, wherein the eukaryotic host microorganism is *Schizosaccharomyces pombe*.
- 20 4. The method according to Claim 3, wherein the part of the genome of *Schizosaccharomyces pombe* unnecessary or detrimental to production of the heterologous protein by the transformant in culture is a gene selected from the genes associated with energy metabolism and the genes associated with proteases.
- 25 5. A eukaryotic host microorganism for production of a

heterologous protein encoded by a transgenically introduced gene, which is constructed by the method according to Claim 1.

6. The host according to Claim 5, wherein the eukaryotic
5 microorganism is *Schizosaccharomyces pombe*.

7. A transformant obtained by introducing the structural gene encoding a heterologous protein into a eukaryotic host microorganism in which part or all of the genome of the eukaryotic host microorganism unnecessary or
10 detrimental to production of the heterologous protein by the transformant in culture has been deleted or inactivated for the purpose of improving productivity of
the heterologous protein.

8. The transformant according to Claim 7, wherein the
15 part of the genome unnecessary or detrimental to production of the heterologous protein by the transformant in culture is genes associated with the energy metabolism, proteases, meiosis, transcription, cell growth and division and DNA synthesis, protein
20 synthesis, membrane transport, cell structure maintenance, signal transduction or ion homeostasis in the eukaryotic host microorganism.

9. The transformant according to Claim 7, wherein the eukaryotic microorganism is *Schizosaccharomyces pombe*.

25 10. A method of producing a heterologous protein, comprising causing a transformant of a eukaryotic host microorganism having a gene encoding a heterologous

protein extrinsic to the host and collecting the heterologous protein, wherein the productivity of the heterologous protein is improved by deleting or inactivating part or all of the genome of the eukaryotic 5 host microorganism which is unnecessary or detrimental to production of the heterologous protein by the transformant in culture.

11. The method according to Claim 10, wherein the part of the genome unnecessary or detrimental to production of 10 the heterologous protein by the transformant in culture is genes associated with the energy metabolism, proteases, meiosis, transcription, cell growth and division and DNA synthesis, protein synthesis, membrane transport, cell structure maintenance, signal transduction or ion 15 homeostasis in the eukaryotic host microorganism.

12. The method according to Claim 10, wherein the eukaryotic microorganism is *Schizosaccharomyces pombe*.

13. The method according to Claim 12, wherein the part of the genome unnecessary or detrimental to production of 20 the heterologous protein by the transformant in culture is a gene selected from the genes associated with energy metabolism and the genes associated with proteases.